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AUTHOR Blau, Judith R.; And Others
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ABSTRACT

Traditional theoretical explanations for the rate of expansion of educational institutions have included the "organizational ecology" model of new foundings as a function of population density, the "institutional theory" argument that foundings are responsive to societal/consumer demand, and theories of political economy which describe foundings as products of capitalist interests and expansion. To test predictions from each of these theories, an analysis was conducted of two-year colleges between 1942 and 1979, a period which represented the most rapid expansion of the colleges. Founding dates of two-year institutions in 28 states were identified; the number of other postsecondary institutions in the states was determined; and state populations, per capita incomes, election data, and other variables were determined from U.S. census data. Study findings included the following: (1) analyses of population changes indicated that new foundings usually accompanied population growth, though for two states the opposite was true; (2) state affluence, as measured by per capita income, was directly related to increased foundings; (3) the existence of both large manufacturing sectors and diverse industrial sectors increased foundings, indicating that these interests translated their need for trained labor into educational policies; and (4) in general, the expansion of two-year colleges was not the direct expression of demand, but the success of the manufacturing sector to organize in the presence of large numbers of young adults. Contains 45 references, definitions of terms, and data tables. (KP)

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THE EXPANSION OF TWO-YEAR COLLEGES: TESTS OF INSTITUTIONAL AND POLITICAL ECONOMY THEORIES IN A DYNAMIC MODEL

Report to the Andrew W. Mellon Foundation

Judith R. Blau

Rory McVeigh Kenneth C. Land

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Address all correspondence to the first-named author at Department of Sociology, Hamilton Hall, University of North Carolina, Chapel Hill, NC 27500-3210.
e-mail: jrblau@uncmvs.oit.unc.edu

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THE EXPANSION OF TWO-YEAR COLLEGES: TESTS OF INSTITUTIONAL AND POLITICAL ECONOMY THEORIES IN A DYNAMIC MODEL

Abstract

We examine the foundings of two-year schools from 1942 to 1979, the period of their most rapid expansion. Organizational ecology theory predicts that annual foundings are a function of legitimation and competition, which is specified in terms of the population of organizations, namely, as a quadratic function of organizational density. Sociological versions of institutional theory suggest the importance of cultural legitimacy, thus helping to draw attention to changing public demand, especially as expressed by that segment of the population who benefit most by educational programs. Theories in institutional economics also have bearing on this problem as this approach indicates that organizational foundings should vary across different environments and that these environments themselves change over time. Environmental variation itself influences the selection process so that organizational foundings are governed by dynamics that are more complex than the quadratic specification implies. We further specify these assumptions with measures of political traditions and economic resources.

In a two-stage model, predictions from each of these theories are tested. This synthetic analysis highlights the significance of each theoretical perspective, and specifically indicates that cultural legitimacy can be traced to age-specific groups as well as to general public support for higher education. These effects can be distinguished from those specified by the density dependence model. Moreover, the results show that political traditions are important, and that macro-economic change with respect both to industrial diversity and the relative size of the manufacturing sector also influence the founding rate. The findings also suggest that major economic actors probably play an active role in mobilizing forces that lead to foundings, but this is an inference that must be examined in future research. However, the implications of our findings with respect to manufacturing and industrial diversity do highlight the great, albeit sometimes subtle, influences that economic forces exert on these schools.

THE EXPANSION OF TWO-YEAR COLLEGES: TESTS OF INSTITUTIONAL AND POLITICAL ECONOMY THEORIES IN A DYNAMIC MODEL

INTRODUCTION

Several theories have been advanced to account for the expansion of post-secondary education, yet no empirical study has in fact juxtaposed them in a single model. In this study of U.S. two-year colleges from the 1940s through the 1970s, we attempt to test the implications of three major contending explanations for growth in their rate of founding. The question that is posed is what accounts for the variation in founding rates among states over time. The state is the appropriate unit of analysis given the virtual total dependence of two-year schools on state's enabling legislation and funding. Cooperative ventures between state departments of education and local businesses play an important role in vocational training, and, moreover, unlike most four-year institutions, for which the geographical enrollment base varies considerably, the two-year institution attracts virtually all of its students from within the state.

There is a larger context of controversy that cannot be addressed in this research, but plays a role in our interpretations of the results and also suggests how our study may bear on educational policy. There is long-standing disagreement over whether or not education in two-year programs creates genuine opportunities for upward mobility or whether it sustains inferior schooling, thus perpetuating inequalities in jobs and wages. On the one hand, reports by, for example,

Breneman and Nelson (1981) and Pascarella and Terenzini (1991) suggest high returns on education for graduates of two-year schools, while, on the other hand, other studies (Zwerling, 1976; Lavin, Alba and Silberstein, 1981) find little evidence that this is the case. Rather, the latter research results suggest that the bifurcation of post-secondary education perpetuates, and sometimes aggravates, class inequalities. Our own speculative conclusion is that the jobs and earnings of students from this two-year sector are more contingent on the shifts in the larger economy than are the jobs and earnings of graduates of the four-year sector. This would account for the differences in research results for studies carried out at different times and using different study samples. In addition, our assumption receives some support from general conclusions from research that focuses on educational and wage differences in core and periphery firms, and in different segments of the labor force (for a review, see Kalleberg and Berg, 1987).

In recent decades, two-year institutions have expanded more rapidly than four-year institutions, and they now provide the first college experience for nearly half of graduating seniors (Chronicle of Higher Education, [1991]; for detailed accounts, see Cohen and Brawer [1982] and Diener [1986]). To indicate the expansion of this educational sector, average enrollments between 1937 to 1987 are shown in Figure 1, and total numbers of two-year schools for the same period in Figure 2. Our data are limited to the years between 1942 through 1979, the period for which there is reliable information on both foundings and disbandings.

However, it is evident from Figures 1 and 2 that we have captured that period of rapid expansion, both in terms of student enrollments and new organizations. We trace sources of organizational expansion to between-state differences.

(Figure 1 about here)

(Figure 2 about here)

While relatively little empirical research has been carried out on two-year schools compared with colleges and universities, their increasing role in providing basic education for growing numbers of young adults raises important questions that are immensely important for future educational policies. More specifically, there is growing interest in fostering more joint ventures between two-year institutions and private enterprise (National Research Council, 1994) and, given the lack of information on this educational sector and its students, baseline analyses of its conditions of growth are particularly important. Because these institutions tend to include disproportionate numbers of economically disadvantaged groups, notably minorities, women and working class students (Monk-Turner, 1990), it is especially important that they are protected from the vagaries of interest by the private sector.

THEORETICAL MODELS

While not equally specific in their predictions and quantifiability, three distinct approaches have bearing on this problem. The first is organizational ecology, which does make very precise predictions about the dynamics underlying the founding rate of organizations of virtually any kind (for a

recent summary, see Carroll and Hannan, 1992). The second is institutionalization theory, which advances certain assumptions about the way in which cultural rules and societal linkages legitimize organizations (Meyer and Scott, 1983). A third is political economy, which sensitizes any analysis to the importance of capitalist interests in education and the ways in which the polity advances these interests (for example, Bowles and Gintis, 1976). We also take into account that foundings depend on resources. A state's resources include relative affluence of its state's population, changing demand for higher education, and an estimate of the size of the state's population that is "at risk" for enrollment in a two-year degree. A multi-level model that is defined by two over-time equations enables us to estimate the founding rate in terms of the specifications of these various theories.

Organizational Ecology

One explanation that accounts for new foundings is cast in the terms of nonlinear dynamics, namely, that new foundings are a quadratic function of organizational density. This formulation specifies that within a population of organizations, initial increasing legitimacy of an organizational form leads to a high founding rate and subsequent competition pressures. This model has been tested on organizations that exhibit institutional embeddedness and depend on normative support, including ethnic newspapers (Olzak, 1992), baseball teams (Land, Davis, and Blau, 1993), and labor unions (Hannan and Freeman, 1977). Density dependence is also a powerful explanation of the growth

trajectory of organizations that operate solely in terms of efficiency and are lodged in the market sector (for various applications see Carroll and Freeman, 1994). Specific applications to educational institutions by Nielsen and Hannan (1977; also see Hannan and Carroll, 1992:191-192; Studer-Ellis, 1991) suggest that organizational ecology variables be should be taken into account.

Institutional Theory

Institutional theory, in contrast, emphasizes the changing environment in which organizations emerge, and in the case of educational facilities, the emphasis has been on the advance of the democratic and progressive forces that are responsive to consumer demand. The notable emphasis among institutionalists in accounting for the development of schools in the U.S. has been the "society," and not the state (Meyer, Scott, Strang, Crighton 1988:163). That is, schools have responded to normative and legitimizing currents, such as notions of educational equality, constituent interests, and progressivism.

While the empirical research by Meyer and colleagues (Meyer and Rowan, 1978; Meyer et al., 1988) has been on elementary schools, Skocpol (1992: 88-98) extends this argument to higher education as well. Schools, of all, kinds, she argues, were widely popular in America, and, hence, elected officials supported them. Institutional theory is compatible with specific accounts of schools as an expression of democracy and the articulation of local interests in a pluralist society (Alford and Friedland, 1985) and with progressive theories of education

(for example, Cremin, 1988) that stress that schooling goes hand in hand with public demand and democracy.

Hannnan and Carroll (1992: 34) contend that institutionalization has a clear connection with ecology theory. Specifically, they argue that legitimation accounts for the rapid rate of increase in organizational foundings after an initial period of slow founding rates and high rates of failure. But institutional theory posits factors that are exogenous to the organizational population itself. More precisely, institutional theorists challenge the assumptions made by organizational ecologists that environments are more or less stable. They also contend that organizational evolution over time may alter the environment, which in turn alters the evolutionary trajectory of institutions (for a review, see Hodgson, 1993). For our model of school foundings over time, we can roughly take these institutional factors into account by an overall estimate of population demand - the relative annual increase in total population size - and in the state-level analysis, estimates of levels of educational attainment and state population size. These factors not only capture demand for higher education but also take into account that this demand is affected by varying cultural value that schools are accorded by people who have more or less higher education.

Political Economy Theories

Institutional theories of social welfare functions, such as education, have been criticized for neglecting the role of business (Block, 1987) and class (Katznelson and Weir, 1985). In

the clearest statement of this revisionist approach, Bowles and Gintis (1976) argue that education is the product of capitalist expansion. In fact, this is not inconsistent with some versions of institutional theory. DiMaggio and Powell (1983) have drawn attention to the role of elites as they are in a position to create new definitions of objectives and manipulate perceptions of legitimacy. In the specific case of junior colleges, Brint and Karabel (1989) trace the increasing success of large corporations to fundamentally reshape the mission of these postsecondary institutions from one of liberal arts to vocational training.

We can be more precise in an analysis of two-year institutions in specifying what we mean by the role played by elites and the state. If we view the state as a mediator of class interests, consumer demand, and business elites, we are in a better position to specify the implications of political economy theory for the foundings of two-year institutions. As already noted, the vast majority of two-year institutions are largely a creature of state enabling legislation. While it is virtually impossible to describe the political climate of a heterogeneous nation, each of the individual states have varied traditions of progressivism and public welfare, and differ with regard to the strength of business elites.

Consistent with political economy theories, it is likely that business owners are able to exert disproportional influence upon the political process simply by virtue of their entrenched interests in the local labor supply. Businesses generally are likely to put forth a united front on issues affecting their

common interests especially when these interests can be couched in public-goods or national-interest terms (Useem, 1984). Political officials, drawn from the ranks of lawyers and business themselves, are persuaded by such viewpoints that link public interest to economic interest (Miliband, 1970). It is notably the highly-organized manufacturing sector that has benefited from the products of two-year schools and that have worked with state officials and education administrators to develop vocational programs in two-year institutions.

While recognizing that in a state that has an organized manufacturing base, its economic representatives will be interested in developing apprenticeship and vocational programs geared to factory jobs, a highly diverse economy has somewhat different implications for programs associated with the expansion of two-year institutions. Specifically, a diverse economic base creates backward linkages (Hirschman, 1959) for jobs and workers that are less dependent on particular firms and particular economic activities. Such diversity also indicates the strength of new sectors of the economy, namely, service industries, including computer technology, health, and government. The two measures used to test these hypotheses are: the percent of the labor force in manufacturing, and the industrial heterogeneity of the labor force.

While it is assumed that manufacturing enterprises derive benefits from the programs offered by two-year colleges and a broad-based economy creates the opportunities in the growing service sector, it is also recognized that the expansion of

educational opportunity has been a central component of the agenda of moderate political parties that stress reform, expanding opportunities, and social welfare. Because it is the Democratic Party in the U.S. that is most likely to support such an agenda (Jackman, 1987), we use the state's percentage of Democratic votes, averaged for the first two presidential decades in each decade, divided by the decade's sample mean.

State Resources and Demographic Characteristics

There is a danger in overlooking the complex relations between the interests of economic producers and those of consumers. It is also necessary to take into account an indication of the overall level of state prosperity, which presumably bears on the support of higher education.

As already noted, two-year colleges produce students who are utilized as resources by business enterprises. They also provide education as a good which is consumed by students, which in turn is parlayed into career opportunities. To the extent that age-specific demand is driving foundings, we would expect that a measure of the changing potential pool of eligible applicants is related to foundings, independent of a growing public.

One indicator is the changing size of the cohort whose members are most likely to be attending institutions of higher education. Another indicator more specifically taps those at "high risk" for a two-year school, namely, the ratio of the percent of 25 to 29 year olds with a high school degree to the percent of the state's population that has some college. According to Pampel and Williamson (1989), the provision of

public goods can be understood in terms of demographic accounting; specifically, the supply of such goods is partly a function of the relative size of those who stand to benefit most. Finally, to take into account variation among states with respect to overall affluence (which is reflected in tax dollars for higher education and the propensity of the population to support educational programs), we use in the model decade levels of state's per capita income.

MODELING FOUNDINGS: ESTIMATION TECHNIQUE

A multilevel approach is appropriate as we can estimate the parameters for the linear model of foundings on those obtained from a model that includes the nonlinear effects of estimates from organizational ecology predictions, specifically, the quadratic density formulation. and of that implied by institutional theory, specifically, population change. This two-stage approach is known as multilevel contextual analysis (Gameron, 1992; DiPrete and Grusky, 1990; Mason, Wong and Entwisle, 1983). As Alba (Blau and Alba, 1982) earlier noted, effects analysis in which the dependent variable in the second stage is a parameter estimated in the first stage addresses two distinct questions. In this context, the first stage estimates the sources of variation due to annual time-dependent processes. And, the second stage addresses concerns about how these time dependent processes can be understood in terms of changing state-level environments estimated by mean values for each of four decades (1940, 1950, 1960, and 1970). Explicitly, the dependent

variable in the second stage comprises the unstandardized coefficients of state decade dummies from the first stage. They represent the variation in foundings among decades and states that is net of population growth and organizational dynamics.

DATA AND VARIABLES

The founding dates of 2-year institutions were identified and corroborated from many sources (HEGIS, College Bluebook, Patterson's Directory, Junior College Directory). This was necessary owing to the fact that two-year institutions are susceptible to many changes, including mergers, renaming, and reclassifications. In considering the appropriate population of post-secondary institutions for the purpose of modeling nonlinear quadratic effects on new foundings, we considered two possibilities: the population of two-year institutions and that of all institutions of higher education. It is evident to us that two-year institutions are part of a larger population of schools, and to ignore that fact in conceptualizing legitimacy and competition effects would result in a misspecification of the model. Annual density is thus defined as all postsecondary institutions in the state and the one year lag is employed in the model. Density estimates are difficult to construct as the disbandings of schools are not routinely recorded along with founding dates. Individual schools were traced through the annual editions of The Educational Directory (1937-1987). Our data are thus constrained to the years in which this directory was published.

Population change and per capita income were obtained from the Statistical Abstracts; election data were coded from the Congressional Quarterly's Guide to U.S. Elections (1985); and the remaining variables were obtained from decennial population censuses. Figure 3 provides the definitions of all variables used in the state-level analysis.

(Figure 3 about here)

Only 28 of 48 continental states are included in these analyses; a few states have virtually no two-year institutions. The comparison presented in Appendix 1 between states included and those excluded, demonstrate that those states excluded from the analysis tend to be predominantly agricultural, rank low on percent urban and population size, and are more likely to be Republican states. The most prominent difference between the two samples is population. The average state population for those included in the sample is nearly 6 times that of the excluded states. The two sample means are not significantly different for the percentage with college and high school education, or for the percentage of the population that live in urban areas.

States in our sample, though, are significantly less agricultural, have a significantly higher median income, more manufacturing, and are more likely to vote Democratic. These statistics suggest that excluding the 22 states with low numbers of foundings will have a conservative impact on our second stage estimates.

(Appendix 1 about here)

RESULTS

Estimation of first-stage

The first stage captures the specific predictions of organizational ecology and, in a very general way, the assumptions of institutional theory. Growing legitimacy of an organizational form and the articulation of public interest are each of interest in institutional theory, whereas organizational ecology fails to distinguish legitimacy (organizational density) from public interest. Of course, we cannot do this precisely, but do so by distinguishing the density of the organizational population from an upper bound estimate of growth in the size of public interest (that is, demographic growth).

For some states we do not include all four decade variables due to collinearity problems. In 8 states, for example, the 1950 variable is omitted since there were few or no foundings before 1950. Coefficients for each of the 28 models are reported in Table 1.

(Table 1 about here)

The assumptions of density dependence of foundings is that foundings increase initially with legitimation and is slowed with increases in competition. In short, the founding rate is expected to resemble an inverted U over time (for a recent summary, see Hannan and Carroll, 1992). Entered in the first equation are the terms that estimate these dynamics - density and density squared - as well as the estimate of public demand - population change - and decade dummies for 1950, 1960, and 1970. The intercept represents the expected number of foundings for 1940, net of the

effects of other variables. Because a time series of annual counts is a Poisson process, we use Maximum Likelihood estimation technique in Table 1.

Ignoring significance levels, the predictions of organizational ecology are born out for 24 of the 28 states, and with a one tailed test, the quadratic specification has the expected curvilinear effect in 16 of the 28 states. The results for population change demonstrate that for the most part new foundings accompany population growth, but not always. In fact the coefficients for California and Colorado are significantly negative, which may be due to the fact that both states early adopted public two-year programs in advance of the growth of their state's population. However, the overall results support the conclusion that organizational dynamics and population demand have independent effects on new foundings. More generally, these findings suggest that we cannot infer legitimation from organizational density alone, but rather the growth of public demand (as measured by population size) plays a separate role in the expansion of postsecondary education.

That we do not fully replicate organizational ecology predictions is not surprising owing to the dependence of two-year institutions on state environments. Thus, in the second stage we attempt to decompose the sources of between-state and between-decade variation that can be accounted for by indicators derived from political economy and resource theories.

State Sources of Variation

The question asked in the second stage is: what are the hypothesized differences among states and over time that account for variation in the founding rate. The appropriate dependent variable is the parameter that is estimated in the first stage of the analysis (Table 1) for each state-decade dummy. It correspondences to a change in foundings that is net of population change and estimates of quadratic growth dynamics. Under consideration are the predictions of political economy and state resources, having controlled in the first stage the relevant measures derived from organizational ecology and institutional theory. Because statistical problems associated with count data and time series are resolved in the first stage, Ordinary Least Squares is appropriately used in this second stage. Diagnostic tests for heteroscedasticity and error indicate that the model stands up well under the given specifications.

Each state potentially has 4 values that are derived from the first stage: the intercept (the expected number of foundings in the state in 1940), and for each of the decades, 1950, 1960, and 1970, the coefficient of each decade dummy is added to the intercept. We pool the data, yielding a sample with 100 observations[1]. The correlation matrix for the variables is provided in Appendix 2, and the results are presented in Table 2.

(Appendix 2 about here)

(Table 2 about here)

[1]The sample would include 112 observations were it not for 12 decade dummies which were not included in the first stage for reasons noted earlier in the text.

It was predicted that state resources as reflected in eligible candidates and state affluence would increase two-year foundings within a decade. In equation 1 of Table 2, the prediction for an increase in the at-risk category and per capita income does increase foundings. The more specific estimate of the "at-risk" category, the percent of those with high school degrees divided by the percent of those with some college, is negative and insignificant. State affluence, as measured by per capita income, does increase foundings, an indication that institution building - particularly when the institution is so much related to state policy and financial base - is advanced when citizens are relatively well-off. This means a more generous public and a better base for purposes of levying taxes and passing school bonds.

The results also support our hypotheses about political economy indicators. Not only does a substantial manufacturing base increase foundings but so does a diverse industrial sector. Manufacturing concerns are organized to translate their need for trained workers into educational policies that local two year institutions and state departments of education find attractive. Yet beyond this, a diverse economy is translated into widespread opportunities for potential students to identify programs that two-year institutions have increasingly offered as the service sector has expanded. Such a diverse economic base has linkages to consumers of education as well as it stimulates entrepreneurial activities within the educational sector. It is also the case that the states that have persisting Democratic Party majorities

are also likely to have higher rates of foundings, net, of course, of the other variables in this equation but also net of dynamic process that is controlled in the first stage. Thus, the interpretation of the results that pertain to the role of politics and the economy indicates that big business is important, but so is a relatively evenly-balanced economy. Paradoxically, it is not the strength of the relatively pro-business Republican party that spurs the growth of the very institutions that provide much of the labor for manufacturing and other economic establishments, but rather pluralities in the Democratic Party that has traditionally favored the working class and social programs.

These results raise questions about the precise role of the manufacturing sector. For example, a positive interaction term between percent manufacturing and per capita income would indicate that the effect of manufacturing dominance in the economy on two-year institutions is strongest under conditions of economic affluence. Although this is not the case, the results of examining individual interaction terms yielded one finding that is altogether plausible. Namely, we find that the influence of the manufacturing sector on foundings is contingent on the relative size of the population most "at risk" as candidates of two-year institutions. The measure of the excess of high school graduates over that of young adults with some college is used to form the interaction term in equation 2 of Table 2. This interaction effect is positive and significant. What this implies is that a in a state with a high concentration of manufacturing,

owners and managers mobilize new two-year college foundings so long as there are the well-suited potential students. These potential students, of course, are not broadly defined as an age cohort, which we have already taken into account, but rather in terms of large numbers of high school graduates relative to young people with some college. When the interaction term is included in the model, per capita income is no longer statistically significant, indicating that affluence has if anything, indirect effects on foundings that is mediated by the mobilizing capacity of the manufacturing sector.

CONCLUSIONS

The dynamic multi-level research design allows us to distinguish the effects on foundings of variables derived from organizational ecology, and variables derived from theories that relate to institutional processes, political economy, and environmental resources. The analysis sheds light upon the underlying structural forces which are conducive to the foundings of two-year colleges. Organizational dynamics are in part governed by legitimation and competition processes that underlie the quadratic effects of organizational density and shape the rate of foundings over time. Yet, organizational ecology models do not easily lend themselves to modeling differences among various contexts (in our case, states) nor environmental change within each context over time. The various changing contexts presumably alter the founding rates above and beyond the quadratic effects of organizational density.

We specify the model of the foundings of two-year schools to take into account density effects as well as changing state-level conditions. Populations that have growing numbers of young adults and affluence can be seen as resource bases for organizational foundings. The influence of the former persists when an interaction term is included in the model, but the influence of affluence disappears. In contrast with the positive effects of changes in the numbers of young adults, an indicator of educational deficits in the pool of young adults is negatively related to foundings in the presence of organized manufacturing sector. In other words, manufacturing's positive influence is exerted primarily to the extent it can tap a population in which a disproportionate number of young adults are not college educated, but in the absence of a large manufacturing sector those most likely to benefit from postsecondary education - high school graduates - are unlikely to experience the growth of institutions which would most benefit them. This paradoxical result suggest that without the efforts of manufacturing elites, states fail to establish institutions for those that would benefit most from them. Thus, a large manufacturing sector plays an important role, especially as it can exercise influence on new foundings when the state has an abundance of those who can precisely provide the labor pool on which manufacturing so heavily depends - not the college-educated, but high school graduates - who with one or two years of training can become skilled workers.

Yet our findings also suggest that economic diversification matters. In states that have a balanced economy and particularly that have kept pace with the service sector, foundings of two-year institutions have increased as well. This means training opportunities in white-collar jobs and, presumably, involves advantages for flexible employment for graduates, although it is not certain that this translates into higher wages (see Kane and Rouse, 1993). If the economy matters, so does a state's political tradition. States whose populations tend to vote for the Democratic Party are more likely to have higher founding rates than states with Republican traditions.

Perhaps it is obvious that our findings suggest a calculus that underlies the way that economic elites influence educational sector. But the finding that such a calculus can be detected that operates above and beyond other factors ought to sensitize policies about educational quality and particularly vocational programs sponsored by manufacturing concerns. As noted at the beginning of this paper, two-year programs attract students with fewer options that those who attend four-year programs. Our reading of the controversy over the differentials between graduates of the two-year and four-year colleges, is that the disparities widen with high unemployment rates. These speculations relate to differences between core and peripheral employment under conditions of economic recessions, and notwithstanding the controversy, there is general agreement that those with less education are more likely to be employed in non-core sectors of the economy.

Aside from the support we find for organizational ecology theory, our results suggest the importance of institutional factors. In general, increasing public demand for education is important, and more specifically, the higher the relative increase in the number "at risk" (young adults), the higher the founding rate of two-year schools. Moreover, our emphasis on state variation and over-time change with respect to the educational environment, highlights the importance of theories pertaining to political economy and resources. It is here that our findings suggest that versions of institutional theory in sociology can be clarified by a recognition of distinctions between cultural legitimation on the one hand, and sponsorship and resources on the other. We find that political traditions play a major role in the founding rate, as does a diversified economy. There is also evidence that the expansion of two-year schools is not at all the direct expression of demand, specifically, relatively large numbers of young adults who lack any college. Instead, it is the success of the manufacturing sector to organize in the presence of these large numbers of young adults. Individuals may transmit the cultural understandings that education is important, and organizations may exhibit an evolutionary dynamic over time, but economic factors also play a role. Clearly in this analysis, we cannot detect which is the more proactive - economic actors or educational entrepreneurs. However, given the importance of the economic climate in which two-year schools are founded raises policy questions about the fit between educational and job opportunities

as well questions about the way in which joint ventures between schools and businesses are established, accredited, and monitored.

References

Alford, Robert R. and Roger Friedland. 1985. Powers of Theory: Capitalism, the State and Democracy. Chicago: University of Chicago Press.

American Association of Junior Colleges. 1955- present. Junior College Directory. Washington, DC: AAJC.

American Council on Education. Annual. Community College Fact Book. New York: Macmillan.

Blau, Judith R. and Richard D. Alba. 1982. "Empowering Nets of Participation." Administrative Science Quarterly 27: 363-379.

Block, Fred. 1987. Revising State Theory. Philadelphia: Temple University Press.

Bowles, Samuel and Herbert Gintis. 1976. Schooling in Capitalist America. New York: Basic Books.

Breneman, David W. and Susan L. Nelson. 1981. Financing Community Colleges. Washington, DC: The Brookings Institution.

Brint, Steven and Jerome Karabel. 1989. The Diverted Dream: Community Colleges and the Promise of Educational Opportunity in America. Oxford: Oxford University Press.

Chronicle of Higher Education. 1991. The Almanac of Higher Education. Chicago: University of Chicago Press.

Cohen, Arthur M. and Florence B. Brawer. 1982. The American Community College. San Francisco: Jossey-Bass.

College Entrance Examination Board. Annual. The College Handbook. New York: College Board.

Cremin, Lawrence. 1988. American Education. New York: Harper & Row.

Diener, Thomas. 1986. Growth of an American Invention: A Documentary History of the Junior and Community College Movement. New York: Greenwood Press.

DiMaggio, Paul J. and Walter W. Powell. 1983. "The Iron Cage Revisited." American Sociological Review 48: 147-160.

DiPrete, Thomas A. and David B. Grusky. 1990. "Structure and Trend in the Process of Stratification for American Men and Women." American Journal of Sociology 96: 107-143.

Gameron, Adam. 1992. "The Variable Effects of High School Tracking." American Sociological Association 57: 812-828.

Hannan, Michael T. and John Freeman. 1987. "The Ecology of Organizational Founding: American Labor Unions, 1836-1985." American Journal of Sociology 92: 910-943.

Hannan, Michael T. and Glenn Carroll. 1992. Dynamics of Organizational Populations. New York: Oxford University Press.

Hannan, Michael T. (eds.) 1993. Strategy, Structure, and Dynamics. New York: Oxford University Press.

Hirschman, Albert O. 1958. The Strategy of Economic Development. New Haven: Yale University Press.

Hodgson, Geoffrey M. 1993. "Evolution and Institutional Change." Pp. 222-242 in Uskali Maki, Bo Gustafsson, and Christian Knudsen (eds.), Institutions and Economic Methodology. London: Routledge.

Jackman, Robert. 1987. "Political Institutions and Voter Turnout in Industrial Democracies." American Political Science Review 81: 405-423.
Kane, J. Thomas and Cecilia Rouse. 1993. "Labor Market Returns to Two-and Four-Year Colleges." Unpublished paper.
Kalleberg, Arne L. and Ivar Berg. 1987. Work and Industry. New York: Plenum.
Katznelson, Ira and Margaret Weir. 1985. Schooling for All. New York: Basic Books.
Land, Kenneth C, Walter Davis, and Judith R. Blau. 1993.
Lavin, David E. Richard D. Alba, and Richard A. Silberstein. 1981. Right versus Privilege. New York: Free Press.
Levine, David O. 1986. The American College and the Culture of Aspiration, 1915-1940. Ithaca: Cornell University Press.
Mason, William M., George Y. Wong, and Barbara Entwisle. 1983. "Contextual Analysis through the Multilevel Linear Model." Pp.. 72-103 in Sociological Methodology, 1983-1984, edited by Samuel Leinhardt. New York: Jossey-Bass.
Miliband, Ralph. 1969. The State in Capitalist Society. New York: Basic Books.
Meyer, John W. and Brian Rowan. 1978. "The Structure of Educational Organizations," pp. 352-68 in Marshall W. Meyer, Environments and Organizations. San Francisco: Jossey-Bass.
Meyer, John W., W. Richard Scott, David Strang and Andrew L. Creighton. 1988. "Bureaucracy without Centralization: Changes in the Organizational System of U.S. Public Education, 1940-1980." Pp. 139-168 in Lynn G. Zucker (ed.), Institutional Patterns and Organizations. Cambridge: Ballinger.
Monk-Turner, Elizabeth. 1990. "The occupational achievements of community college entrants." American Sociological Review 55: 719-726.
National Research Council. 1994. Preparing for the Workplace. Washington, DC: National Academy Press, 1994.
Nielsen, Francois and Michael T. Hannan. 1977. "The Expansion of National Educational Systems: Tests of a Population Ecology Model." American Sociological Association 42: 479-490.
Olzak, Susan. 1992. Dynamics of Ethic Competition and Conflict. Stanford: Stanford University Press.
Pampel, Fred C. and John B. Williamson. 1989. Age, Class, Politics and the Welfare State. Cambridge: Cambridge University Press.
Pascarella, Ernest T. and Patrick T. Terenzini. 1991. How College Affects Students. San Francisco: Jossey-Bass.
Peterson's Guides. Annual. Princeton, NJ: Peterson's Inc.
Skocpol, Theda. 1992. Protecting Soldiers and Mothers. Cambridge: Harvard University Press.
Studer-Ellis, Erich M. 1991. "Foundings of Women's Colleges in New York, Massachusetts, and Pennsylvania." Paper presented at the annual meetings of the Southern Sociological Society meetings.
U. S. Department of Education. 1942-1970. Educational Directory. Washington, DC: DOE.

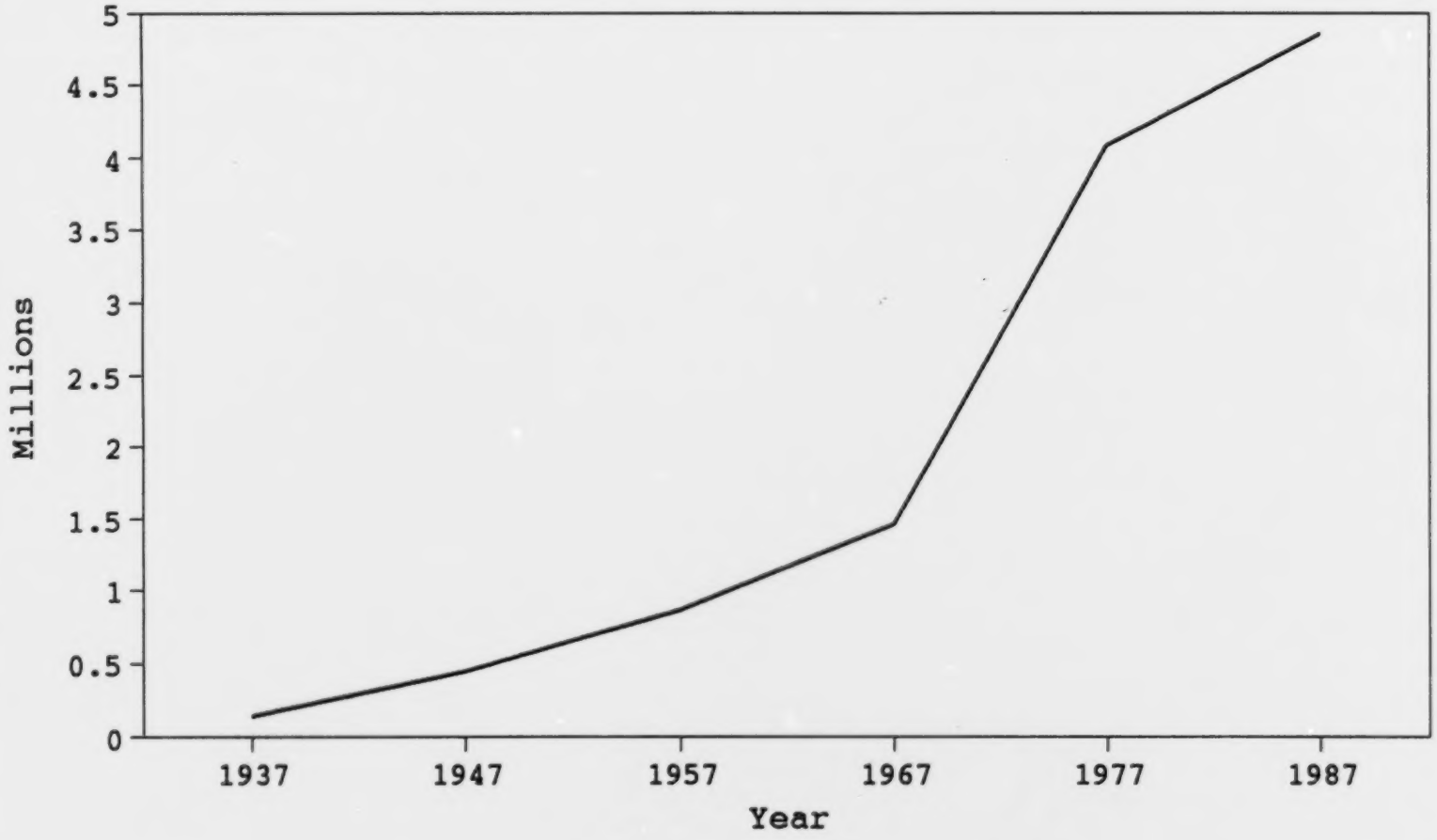
U.S. National Center for Education Statistics. 1970 - Integrated Postsecondary Education Data System (IPEDS) and Higher Education General Information Survey (HEGIS). Washington DC: NCES.

Useem, Michael. 1984. The Inner Circle. New York: Oxford University Press.

Zwerling, L. Steven. 1976. Second Best: The Crisis of the Community College. New York: McGraw-Hill.

Figure 1.

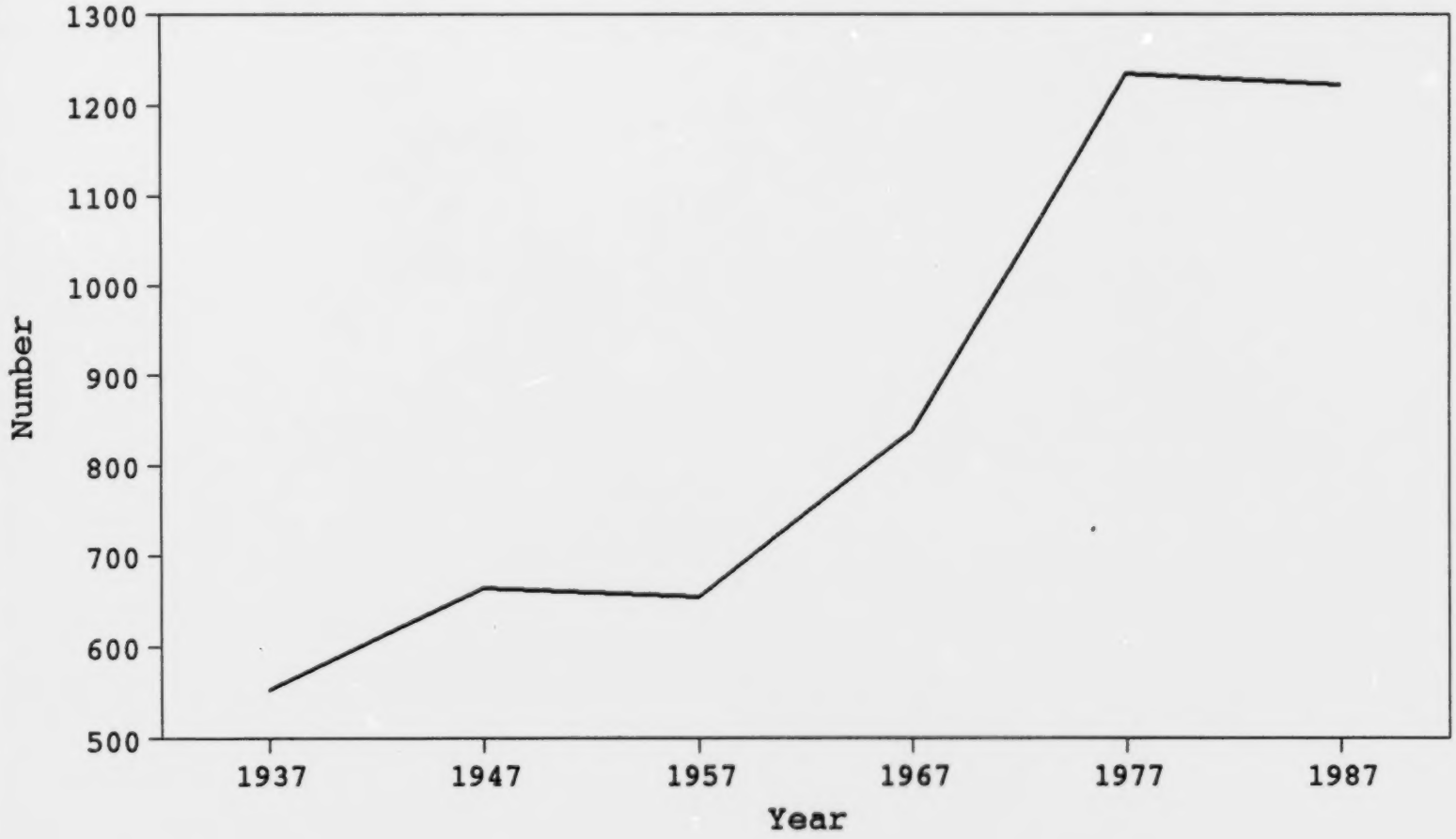
Two Year College Enrollment: 1937-1987



Source: American Council on Education, 1988. Figures are approximate.

Figure 2.

Number of Community Colleges: 1937-1987



Source: American Council on Education, 1988. Figures are approximate.

Figure 3. DEFINITIONS OF VARIABLES FOR STATE ANALYSIS

Dependent variable
Decade intercepts; unstandardized coefficients from first-stage analysis

Change in % of population between 20 and 24 years of age
Relative change in this age group between each dicennial year

Per capita income
State's per capita income for each decade, divided by the sample mean for the decade (as a control for inflation)

% of 25-29 year olds with high school degree divided by % with some college
State's ratio value for each decade

Democratic presidential voting
State's percentage of votes for the Democratic Party in presidential campaigns averaged over the first two elections for each decade, divided by the sample mean for the decade (to control for variation in voter turnout)

% Manufacturing
% of the labor force in manufacturing for each decade

Industrial heterogeniety
The index of diversity $(1 - P_i^2)$, where P_i is the proportion of the labor force in each of the industrial categories

Table 1. Effects of Organizational Ecology Variables on Foundings by State, 1942-1979.

State	population change	density	density-sqared	intercept	1950	1960	1970
Alabama	27.614 *	1.094 **	-0.014 **	-3.596 **	0.163	2.511 **	1.3
California	-1.916 **	0.013	-3E-05	1.865 **	-0.82	0.043	-0.574
Colorado	-29.348 **	1.032 *	-0.016 *	0.017	x	0.946	0.42
Connecticut	3.835	-0.325	0.44	-1.718	0.73	1.925	0.859
Florida	7.78 ***	0.306 **	-0.004 ***	-0.8	-1.726 *	-1.185	-1.692
Georgia	-2.81	1.085 **	-0.009 **	-1.297 **	-0.185	1.361 *	1.691
Illinois	2.387 *	0.636 **	-0.002 **	0.19	0.139	-0.163	-1.691 *
Indiana	20.092 **	5.398 ***	-0.052 ***	-2.517	x	x	-3.293 ***
Iowa	88.111 ***	-38.887 **	0.374 **	-5.806 ***	x	6.518 ***	x
Kentucky	8.75	6.99	-0.09	-1.416 **	-0.56	1.868 ***	-1.119
Maryland	-3.258	0.25	-0.004	-1.103	0.906	0.82	1.208
Massachusettes	3.035	0.443	-0.003	-1.554	-0.295	1.402	1.989
Michigan	0.338	0.264	-0.002	-0.444	0.742	0.185	-2.976
Minnesota	12.259	2.319 **	-0.023 **	-4.004 ***	1.462	2.934 **	2.736 *
Missouri	6.471	-0.262	0.002	-0.932	x	1.256	-1.476
New Hampshire	9.859	1.116 **	-0.033 **	-0.859	x	x	-1.174
New Jersey	3.668	0.791 *	-0.008 *	0.536	-1.607 **	-1.065	-2.674 ***
New York	0.461	-0.011	1E-05	-0.005	0.458	1.26	1.026
North Carolina	-0.217	0.234 **	-0.002 **	-1.159 **	-0.46	2.102 ***	2.162 ***
Ohio	4.582 ***	0.333 ***	-0.002 ***	-2.367 **	1.702 **	2.272 **	2.146 **
Oregon	-0.734	0.433	-0.009	-1.335	-1.076	0.907	1.212
Pennsylvania	1.97 *	0.354 **	-0.001 **	0.433	-0.301	-0.054	-0.653
South Carolina	-14.107	0.259	-0.004	-1.585 **	x	1.958 ***	2.53 **
Tennessee	4.657	0.611	-0.005	-1.696 **	0.624	1.473 *	1.167
Texas	4.427 **	0.54 ***	-0.002 ***	0.661	-3.211 ***	-1.542 *	-1.399
Virginia	1.586	1.73 ***	-0.015 ***	-0.919	x	-0.651	0.442
Washington	2.159	1.784 ***	-0.016 ***	-0.669	x	-0.685	x
Wisconsin	4.929	1.997 **	-0.021 **	-3.164	1.715	3.135	0.74

*P<.1
**P<.05
***P<.001

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Table 2. Foundings Net of the Effects of Organizational Ecology Variables by State, 1942-1979.

Variable	unstandardized coefficient	standardized coefficient	unstandardized coefficient	standardized coefficient
constant	-28.39 ***	0	-21.41 ***	0
	(6.72)		(7.13)	
Change in % of population between 20 and 24 years of age	0.13 **	0.185	0.134 **	0.192
	(.065)		(.063)	
Per capita income divided by decade sample mean	1.25 **	0.198	0.989	0.157
	(.623)		(.616)	
% of 25-29 age group with high school degree divided by % with some college	-0.176	-0.051	-2.87 **	-0.832
	(.372)		(1.155)	
Democratic Presidential voting divided by decade sample mean	3.79 ***	0.339	3.856 ***	0.345
	(1.06)		(1.028)	
% manufacturing	0.093 ***	0.537	-0.163	-0.943
	(.029)		(.108)	
Industrial Heterogeneity	24.64 ***	0.525	25.078 ***	0.534
	(7.00)		(6.821)	
%manufacturing*education ratio			0.095 **	1.991
			(.039)	
R-sqared	0.306		0.349	
F-ratio	6.836 (p<.001)		7.041 (p<.001)	

*p<.1
**p<.05
***p<.01

Appendix 1. Mean Values For Sample of 28 States In Comparison to 20 States Excluded From Analysis (Alaska and Hawaii not included).

Variable	Included in Sample	Not Included	Difference	
% agricultural	3.96	7.93	-3.97	*
	(2.56)	(6.07)		
% College Educated	10.56	10.19	0.37	
	(2.08)	(2.07)		
% High School Educated	51.7	53.97	-2.27	
	(7.69)	(8.17)		
% Manufacturing	26.98	17.17	9.81	**
	(6.98)	(9.26)		
% Urban	65.05	60.24	4.81	
	(18.81)	(15.55)		
Total Population (1000's)	6260	4619	1641	**
	(4687)	(874)		
% Democratic Voting	44.04	40.05	3.99	*
	(3.72)	(5.89)		
Median Income	9602	8399	1203	**
	(1387)	(1191)		

*P<.05
**P<.01

Appendix 2. Pearson Correlations for Variables in the Second Stage Analysis. (n=100)

Variable	1	2	3	4	5	6	7
1) Foundings net of O.E. Effects	1						
2) Change in % of population between 20 and 24 years of age	0.214	1					
3) % of 25-29 age group with high school degree divided by decade sample mean	-0.154	-0.277	1				
4) Per capita income divided by decade sample mean	0.28	-0.011	0.121	1			
5) % manufacturing	0.112	0.069	0.444	0.4	1		
6) Industrial heterogeneity	0.111	-0.055	-0.378	-0.146	-0.787	1	
7) Democratic voting	0.249	0.026	-0.342	-0.143	-0.24	0.087	1